Centralized access to newly published zoological names

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Abstract. Issues related to the development of a centralized list or register of new names in zoology are discussed. Central to the discussion is the nature of the list or register itself, and two types are considered. The first is a list of newly published names, without regard for their availability under the *International Code of Zoological Nomenclature*, while the second is a register of all newly published names which are definitely acceptable according to the Code. The second alternative would be an extremely valuable tool, but to produce it would require the checking of not only the information accompanying every name but also of external material. The first option is feasible now, since it is effectively a subset of the current *Zoological Record* (ZR) production process. The possibility is explored of creating a list of names, based on ZR data but with any gaps filled by cooperation with appropriate sectors of the taxonomic community.

Keywords. Nomenclature; taxonomy; registration of names; lists of names; *International Code of Zoological Nomenclature*; *Zoological Record*.

Introduction

The concept of an official, central, register of the names of organisms has long been an attractive idea to many taxonomists, who see it as a means of improving both nomenclatural stability and dissemination of taxonomic information. However, proposed mechanisms for turning the idea into a working reality have met with very different responses. A '*BioCode*' has been proposed to unify the future nomenclatural treatment of *all* organisms, and in draft versions of this (see for example BZN **53**: 148–166) the registration of new names is included (Article 8) as a requirement for their establishment as acceptable names. However, the adoption of such a unified Code is not an immediate prospect. Microbiologists already have definitive *Approved Lists of Bacterial Names* for past names and mandatory registration of new ones (achieved by their publication in the *International Journal of Systematic Bacteriology*), and botanists have set up a two-year (1998–1999) trial of name registration, possibly to be followed by mandatory registration after 1 January 2000 or some later date (see Borgen et al., 1998). Zoologists, on the other hand, have so far chosen not to pursue registration in any form. A proposal in the discussion draft of the new (fourth) Edition of the *International Code of Zoological Nomenclature* (to come into effect on 1 January 2000) which was circulated in 1995 required 'international notification' (in effect registration) of all new names by recording them in the *Zoological Record* (ZR), but this was abandoned in the face of widespread opposition.

This opposition was based on several expressed concerns: the ultimate responsibility for the availability of names was shifted onto the shoulders of the ZR recorders; perceptions that access to ZR favoured the developed world and would require payment; ZR coverage was insufficiently complete or reliable. Such drawbacks were seen by some as serious enough to raise the possibility of creating a new official body (presumably allied to the ICZN) to carry out the registration task, but no study of its feasibility was made.

Nevertheless, despite the opposition to the idea of mandatory registration of names, many zoologists do see the need for some sort of central resource of names to which all biologists could easily refer. This article explores the issues associated with providing such a resource.

Options for a centralized name register in zoology

There are differing views among taxonomists as to whether 'registration' should merely record names as they are published, or take the process significantly further by performing checks (using both internal and external evidence) on the nomenclatural acceptability of each name, effectively taking on a commenting/authoritative rather than a mere reporting role.

The second alternative, registering a name and fixing its authorship and date of availability, would to a large extent have been achieved by the 'international notification' proposed in the discussion draft of the new Code. Supporting and opposing views on this proposal were extensively documented in this *Bulletin* (BZN **52**: 229-232, 296, 300; **53**: 6–7, 8–9, 11, 15–17, 83–85, 87–88; see also Bouchet, 1999). In principle a register of a fully-checked type could be compiled by an organization specially created for the purpose, but there is no likelihood of this in the foreseeable future.

The first alternative, providing a centralized register or listing of all new names but taking them purely at face value as published, is feasible using existing facilities. Such a list could be produced by having authors of new names send copies of their publications to one or more agreed centres, and/or by examination of the current literature. The undertaking of even this as an entirely new initiative would be a substantial endeavour, since keeping track of what had been covered, in addition to the effort of recording the names themselves, would require significant resources of which there is no sign. However, a list of names published as new according to their authors, together with sufficient bibliographic data to enable other biologists to locate the name and evaluate its validity, could readily be produced from ZR. Relevant entries from the ZR database could easily be formatted to provide a list of names as defined above. It is important to note that ZR currently makes availability checks based on internal evidence in the publication, but does not survey external evidence.

While a register consisting of a basic list of new names is clearly not as valuable as an authoritative register of nomenclaturally acceptable names, it is certainly an attainable option and at the least such a list would enable taxonomists:

(a) to check for inclusion of their own newly published names and so ensure the widest possible notification to other taxonomists throughout the world;

(b) to discover newly published names within their taxonomic field of interest (some taxonomists may consider that they are adequately aware of all the work in their field being done anywhere in the world, and they would have no interest in such a listing; others, perhaps more realistic, would consider it useful);

(c) in combination with other resources such as Neave's *Nomenclator Zoologicus* of generic names, to check potential new names before publication for possible prior use, and so help to prevent homonymy (in compiling ZR some 40–50 homonymous new generic names are discovered each year, which suggests that access to names in all branches of zoology would be indeed be useful).

It is acknowledged that there are a small number of omissions in ZR coverage (see below), but these could be filled with a little help from the community.

New names in the *Zoological Record*

To give some idea of the magnitude of the task of gathering new names for all groups of animals, we give a few facts and figures based on the effort currently required to compile ZR. Each year about 72,000 papers (including serial articles, books and individual chapters of books) are indexed from material published in some 100 different countries; in total about 4,500 serial titles and 1,200 books are reviewed. Individual records are made for an average of 20,000 new taxa at all ranks; of these, approximately 17,100 are new species and subspecies and 2,200 are new genera and subgenera. A further 8,500 records are made each year to cover new proposals of synonymy and new generic combinations. New names appear in numerous different types of publications, and the range of serial titles dealt with is enormous, from geology, through systematic and applied zoology, to local natural history publications and popular aquarium magazines. Of the 47 staff employed by BIOSIS, U.K., about 30 are directly involved with editorial aspects of ZR compilation, and the remaining 17 in vital administrative and computing support activities without which ZR could not be produced.

Zoological Record and registration

The community rejected the use of ZR as a vehicle for mandatory 'registration' on several counts, but mainly on grounds of accessibility and perceived omissions and inaccuracies. We would like to offer our comments on these issues.

Accessibility

ZR was regarded as not being used by, or readily accessible to, all taxonomists. While we would not disagree about 'universal' use, ZR is probably more widely used by animal taxonomists than any other bibliographic service. It was also assumed that access to new names would have to be paid for, but in fact it was never the intention of ZR that taxonomists would have to be subscribers to check that new names were correctly included. During the period of comment (1995–1996) on the discussion draft of the forthcoming Edition of the Code, ZR made available a demonstration search facility through its web site, as one of a number of possible mechanisms for checking the inclusion of new names. This gave free access to a subset of all new names in the database with a publication date of 1990, together with an e-mail form for comments; though not heavily used (perhaps because of insufficient publicity) the demonstration did illustrate how quickly and easily a name could be checked.

Since April 1997 ZR has provided public access to all names recorded in ZR from volume 115 (1978 literature onwards), through its *Index to Organism Names* — a service offered as an aid to the general bioscience community and currently available on the World Wide Web (http://www.york.biosis.org/triton/nameind.htm). This index gives access to animal names reported in ZR, and names of other organisms provided by collaborating organizations — biologists can check to which group a named organism belongs. This index remains freely available to all, and is consistently well used: each month over 12,000 searches are carried out by around 2,500 different users.

Any list of names based on the ZR index compilation could be made available in a number of formats (print, CD-ROM, on a website, etc.) entirely separate from the ZR product, and access to basic name data would not have to be dependent on subscription to any ZR products.

Omissions

The community felt that the number of names omitted from ZR was unacceptably high. Despite our best efforts, some names inevitably do escape us, and we have collaborated with Dr Philippe Bouchet in an estimate of this (see Bouchet, 1999). The study was based on new molluscan (excluding cephalopod) generic names published during the period 1988–1992, and assessed ZR as about 88% complete in its coverage of such new names; it was concluded that the record is probably about 90% complete for all new genus-group names. The study also analyzed the numbers and types of publications which were omitted. Over the 13-year study period, 260 molluscan generic names which were indicated as being new and contained in 89 publications were omitted, an annual average of about 20 names and 7 publications (for comparison, some 2,000 publications/year are indexed for the Mollusca Section). Of the names omitted, 78% were published in geological or palaeontological publications; the former are not generally regarded as 'core' to ZR's coverage, but are included in the list of serials scanned if they are known sources of new taxonomic names. Of the sources containing omitted names, 46% were non-serial publications (containing 64% of the names missing); this is not surprising, since books are inherently more difficult to locate than serials. Chinese or Russian publications contained 54% of the omitted names — such material, which contributes in total less than 6% of the entire number of items indexed, is difficult to obtain from our source libraries. This is well illustrated by the discovery that of the 19 Chinese books omitted from the Mollusca Section during the period 1988 1992, almost all were still unavailable to us when rechecked at the end of 1997. Liaison with China's Academia Sinica and Russia's Akademia Nauk would give us the opportunity to index their publications and bring them to wider attention.

Most of the other publications which were omitted were the result of human error (mainly gaps in our records of coverage); this was a known problem during this period, and a computer system for recording coverage was introduced in the late 1980's. This is reflected in the reduced level of omission (7.6%) during the period 1988–1992 — the last 5 years of the Bouchet study period. Since then ZR coverage procedures have continued to improve and it is our belief that currently even fewer new names escape us. Publications which contain new names are never knowingly omitted and ZR users are encouraged to notify us of any items which have not been covered (particularly monographs), but, unfortunately, very few taxonomists do this.

Two other types of omissions have been identified. (a) Names missed from items of literature which have been screened; the majority of these are simply the result of human error (oversight by an Indexer), but the incidence is certainly increased by authors' use of unconventional or poor styles of drawing attention to their new names. (b) Names not explicitly indicated as new in the literature; these will not be recorded as new by ZR, as we cannot check all names mentioned in the literature for newness and the policy is to deliberately avoid any judgements regarding the availability of names. However, the forthcoming edition of the Code prescribes (Article 16) that new names published after 1 January 2000 will not be available unless the authors explicitly both indicate that they are new and fix the name-bearing types, and this will clearly be of help.

Accuracy

In Bouchet's analysis 12 new names (0.6% of the total) were found to be spelt incorrectly in ZR. Within the limited resources available to us, great care is taken to ensure that names are transcribed correctly, but we are aware that a small number of errors do enter the database. Over the last ten years, and in particular the last five, changes in quality control processes have been introduced specifically aimed at improving the accuracy of name recording. Further improvements are planned when a fully revised production system is introduced later this year.

Conclusions

The magnitude of the task of gathering and checking all new names published worldwide requires extensive allocation of time and effort. However, ZR already covers approximately 90% of all new names, and with further help from the taxonomic community it should not be too difficult to gather nearly all the remaining 10%. This might allow some formal listing or 'registration' arrangement to be established for zoological names in the future, as already established in bacteriology and seriously contemplated in botany.

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